CORRECTED VERSION

(19) World Intellectual Property **Organization**

International Bureau



20 DEC 2004

(43) International Publication Date 24 December 2003 (24.12.2003)

PCT

(10) International Publication Number WO 2003/106868 A1

(51) International Patent Classification7: F16D 25/10

F16H 63/30,

(21) International Application Number:

PCT/IB2003/002326

(22) International Filing Date:

17 June 2003 (17.06.2003)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

2002-177504

18 June 2002 (18.06.2002)

2002-320470 2003-009520 1 November 2002 (01.11.2002) ЛР 17 January 2003 (17.01.2003) JР

(71) Applicant (for all designated States except US): TOY-OTA JIDOSHA KABUSHIKI KAISHA [JP/JP]; 1, Toyota-cho, Toyota-shi, Aichi-ken 471-8571 (JP).

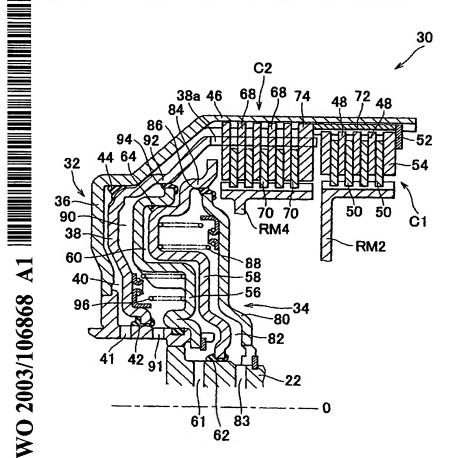
(72) Inventors; and

(75) Inventors/Applicants (for US only): ONISHI, Hirofumi [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, of 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP). YASUDA, Yuji [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, of 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP). MIYAZAKI, Terufumi [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, of 1, Toyota-cho, Toyota-shi, Aichi-ke, 471-8571 (JP). ILJIMA, Yoshihiro [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, of 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP). IMAMURA, Naohiro [JP/JP]; c/o TOYOTA JIDOSHA KABUSHIKI KAISHA, of 1, Toyota-cho, Toyota-shi, Aichi-ken, 471-8571 (JP).

(81) Designated States (national): CN, KR, US.

[Continued on next page]

(54) Title: DUAL CONNECTING AND DISCONNECTING APPARATUS



(57) Abstract: A cylinder tube (56) of a second hydraulic cylinder (34) is provided separate from a piston (38) of a first hydraulic cylinder (32) and integrally fixed to an input shaft (22). Friction members (48) and (50) of a first clutch(C1) and friction members (68) and (70) of a second clutch (C2) are prevented from moving in a first direction by a snap ring (52) attached to a connecting drum (46). The friction members (48) and (50) of the first clutch (C1) are friction engaged by the piston (38) and the friction members (68) and (70) of a second clutch (C2) are friction engaged by a piston (58).



(84) Designated States (regional): European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR).

Published:

- with international search report
- (48) Date of publication of this corrected version:

17 February 2005

(15) Information about Correction: see PCT Gazette No. 07/2005 of 17 February 2005, Section II

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.